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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/912,192	07/24/2001	Mukta G. Farooq	FIS920010111US1	5681

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EXAMINER

EDMONDSON, LYNNE RENEE

ART UNIT PAPER NUMBER

1725

DATE MAILED: 07/25/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/912,192

Applicant(s)

FAROOQ ET AL.

Examiner

Lynne Edmondson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Allowable Subject Matter

1. The indicated allowability of claims 16 and 17 is withdrawn in view of the newly discovered reference(s) to solder removal with a water jet. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claims 16 and 17 are rejected under 35 U.S.C. 102(a) as being anticipated by Black et al. (USPN 6119325).

Black teaches an apparatus for separating electronic components joined by rows of solder interconnections comprising securing means (33) to hold an assembly having at least two components (32,30) joined by a plurality of solder interconnections in a row by row array (34) having a first thickness, a high powered water jet cutting element (36) having a thickness less than the thickness of the solder elements (38) and positioning and driving means to position and advance the water jet cutting element adjacent one of the solder rows (figure 3 and col 2 lines 15-50). Although not shown or disclosed, a separating means of some type is inherently present to remove the separated

component for polishing or frontside use (figures 2 and col 2 lines 51-59). See also Black claims 1-6 and 9-14.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Black et al. (USPN 6119325) in view of Romanini (USPN 6305261 B1).

Black teaches an apparatus for separating electronic components joined by rows of solder interconnections comprising securing means (33) to hold an assembly having at least two components (32,30) joined by a plurality of solder interconnections in a row by row array (34) having a first thickness, a high powered water jet cutting element (36) having a thickness less than the thickness of the solder elements (38) and positioning and driving means to position and advance the water jet cutting element adjacent one of the solder rows (figure 3 and col 2 lines 15-50). Although not shown or disclosed, a separating means of some type is inherently present to remove the separated component for polishing or frontside use (figures 2 and col 2 lines 51-59). However, the high power and thickness of the water cutting element are not further disclosed.

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Romanini teaches a small tool (hand held) for cutting through soft materials with a high powered water jet wherein the water jet has a fluid pressure of 22,000 to 45,000 psi and comes out of an orifice having a size of 0.004 to 0.020 inches which presumably defines the thickness of the water stream (col 5 lines 12-24).

It would have been obvious to one of ordinary skill in the art at the time of the invention to employ known cutting pressures such as 20,000 psi to form a jet having a thickness smaller than the size range of conventional solder ball or bump interconnects (.004-.020 inches or about 100 to about 500 microns) and thereby provide sufficient precision to break through the coupling material without harming the device (Black, col 1 lines 45-56 and col 2 lines 46-50).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Slack et al. (USPN 4602733, solder removal with fluid stream), Spigarelli et al. (USPN 5220147), Hyun (USPN 4896019), Hembree (USPN 6267650 B1, thin desoldering blade), Oglesby et al. (USPN 4785793, thin desoldering blade), Michel (USPN3903581, thin blade, vacuum) and Waller et al. (USPN 5229575).

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynne Edmondson whose telephone number is (703) .

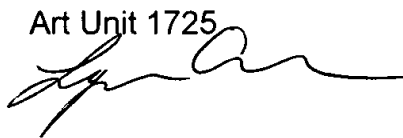
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306-5699. The examiner can normally be reached on Monday through Thursday from 6:30 a.m. to 5 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (703) 308-3318. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7718 for regular communications and (703) 305-7115 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.

Lynne Edmondson
Examiner
Art Unit 1725

7/17/03

LRE
July 17, 2003